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10/569,000

10/10/2006

L. Curtis Hannah

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EXAMINER

HELMER, GEORGIA L

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

10/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/569,000 | <b>Applicant(s)</b><br>HANNAH ET AL. |  |
|                              | <b>Examiner</b><br>CATHY K. WORLEY   | <b>Art Unit</b><br>1638              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26, 31-38, 43-45, 60-67, 72 and 86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-26, 31-38, 43-45, 60-67, 72, and 86 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Groups I-XIV, claim(s) 4-6, 19 (in part) and 45 (in part), drawn to a polynucleotide encoding a mutant small subunit of a heat labile ADP glucose pyrophosphorylase (AGP) enzyme; wherein the polynucleotide encodes SEQ ID NO:4 or comprises SEQ ID NO:3, and to a composition comprising said polynucleotide; including wherein said polynucleotide encodes a specific large subunit; and wherein the specific large subunit for groups I-XIV is HS13, HS14, HS16, HS33, HS40, HS47, HS RTS 48-2, HS RTS 60-1, HS33F, HS33M, HS7+3, HS6+3, HS7+6, and HS7+6+3, respectively. The Examiner requests that the Applicant specify the large subunit if they elect one of the inventions from groups I-XIV.

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Groups XV-XXVIII, claim(s) 9-12, 19 (in part) and 45 (in part), drawn to a polynucleotide encoding a mutant small subunit of a heat labile ADP glucose pyrophosphorylase (AGP) enzyme; wherein the polynucleotide encodes SEQ ID NO:8 or comprises SEQ ID NO:7, and to a composition comprising said polynucleotide; including wherein said polynucleotide encodes a specific large subunit; and wherein the specific large subunit for groups XV-XXVIII is HS13, HS14, HS16, HS33, HS40, HS47, HS RTS 48-2, HS RTS 60-1, HS33F, HS33M, HS7+3, HS6+3, HS7+6, and HS7+6+3, respectively. The Examiner requests that the Applicant specify the large subunit if they elect one of the inventions from groups XV-XXVIII.

Groups XXIX-XLII, claim(s) 13-16, 19 (in part) and 45 (in part), drawn to a polynucleotide encoding a mutant small subunit of a heat labile ADP glucose pyrophosphorylase (AGP) enzyme; wherein the polynucleotide encodes SEQ ID NO:10 or comprises SEQ ID NO:9, including a composition comprising said polynucleotide; including wherein said polynucleotide encodes a specific large subunit; and wherein the specific large subunit for groups XXIX-XLII is HS13, HS14, HS16, HS33, HS40, HS47, HS RTS 48-2, HS RTS 60-1, HS33F, HS33M, HS7+3, HS6+3, HS7+6, and HS7+6+3, respectively. The Examiner requests that the Applicant specify the large subunit if they elect one of the inventions from groups XXIX-XLII.

**CLAIMS 7 AND 8 LINK THE INVENTIONS OF GROUPS XV-XLII**

**CLAIMS 1-3, 17, 18, 31-38, 43, 44, AND 72 LINK THE INVENTIONS OF GROUPS I-XLII**

Group XLIII, claim(s) 20-26 and 60-67, drawn to a method for increasing resistance of a plant to heat stress by expressing a mutant small subunit AGP enzyme.

Group XLIV, claim 86, drawn to a protein comprising a polypeptide comprising a mutant small subunit of a heat labile ADP glucose pyrophosphorylase (AGP).

2. Claims 7 and 8 link the inventions of groups XV-XLII. Claims 1-3, 17, 18, 31-38, 43, 44, and 72 link the inventions of groups I-XLII. The restriction requirement between the linked inventions is subject to the nonallowance of the linking claims. Upon the allowance of the linking claims, the restriction requirement as to the linked inventions shall be withdrawn and any claims depending from or otherwise including all the limitations of the allowable linking claims will be entitled to examination in the instant application. Applicants are advised that if any such claims depending from or including all the limitations of the allowable linking claims are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant applications.

Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. In re Ziegler, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP 804.01.

3. The inventions listed as Groups I-XLIV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The technical feature linking groups I-XLIV is a mutant small subunit of a heat labile plant ADP glucose pyrophosphorylase (AGP) enzyme. In the prior art (WO 99/58698) Hannah et al teach mutants of AGP that are more heat stable (see entire document). They specifically claim polynucleotides encoding mutant small subunits of AGP with increased heat stability (see claim 4). It would not have involved an inventive step to extend their working examples to arrive a mutant small subunits with increased heat stability, therefore, this is obvious over their teachings and claims. Therefore, the technical feature linking the inventions of groups I-XLIV does not constitute a special technical feature as defined by PCT Rule 13.2 as it does not define a contribution over the prior art.

Accordingly, Groups I-XLIV are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

4. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the

requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CATHY K. WORLEY whose telephone number is (571)272-8784. The examiner can normally be reached on M-F 10:00 - 4:00, with additional variable hours before 10:00 and after 4:00.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy K. Worley/  
Patent Examiner, Art Unit 1638